

## ABSTRACT OF THE DISCLOSURE

A method and apparatus for creating a variable frequency-oscillating signal on a semiconductor device. The frequency of a ring oscillator is varied by inserting or removing additional delay into the ring. The frequency of the oscillating signal is periodically compared to an encoded input signal indicating the desired frequency. The comparison result modifies the desired frequency by modifying the amount of delay in the ring oscillator. In an alternate embodiment, an input reference clock is converted to an encoded representation of the input reference clock's current frequency. This resultant encoded representation is compared to the encoded representation of the variable frequency-oscillating signal to determine whether the delay in the ring oscillator should be modified so the frequency of the variable oscillating signal matches the frequency of the input reference clock.

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